Droughts.—Dallas, Tex., 19th, most severe that has been experienced in this section for 30 years; on many plantations wheat is not more than one foot high and is heading out; fears are entertained of a famine in corn and oats; so far vegetables are a total failure; "the high and dry winds that have provailed for three weeks are still blowing, with no moisture in the air and not a cloud to be seen in the heavens;" the drought covers all that portion of the state lying upon a line of Denison and San Antonio, including every county west of it, and an average of two tiers east; in some portions of this territory people are hauling water for drinking purposes a distance of from three to six miles; the larger streams are all of them lower than can be remembered. Fort Gibson, Ind. Ty., 21st, vegetation greatly retarded, stock excepting sheep suffering very much. Ft. Dodge, Ia., 30th, vegetation very backward for want of rain. Corsicana, Tex., 2nd, small grain suffering; 14th, much damage has resulted to the grain crops. Indianola, Tex., 8th, crops suffering very badly; very little rain has fallen in the past three months. Grand Haven, Mich., 24th, crops suffering considerably for want of rain. Yankton, Dak., 30th, wheat suffering. Kanab, Utah, 2nd, ground and grass suffering very severely, cattle dying on ranges; 8th, grass withering; 14th, cattle still dying; 30th, no rain, everything drying up.

Floods.—Forsyth, Ga., 17th, heavy rain, doing great damage to cultivated fields by washing. Thomasville, Ga., 15th to 17th, much damage to farms, highways and railroads, trains stopped four days by washouts. Fayetteville, N. C., 28th, very heavy rain-storm, caused the breaking away of a dam outside city limits, one railroad and three street bridges swept away, and a large woolen factory almost entirely ruined; much damage to private property. Deadwood, Dak., 21st, 22d, several houses washed away. Omaha, Feb., 8th, 9th, railroad tracks along the flats submerged; smelting and refining works partly flooded. Fort Sill, Ind. Ty., 22nd, creeks impassable. Corsicana, Tex., 22nd, all highway bridges within a radius of thirty miles swept away; large numbers of cattle and horses drowned; railroad trains abandoned on the Texas Central for thirty-six hours. Shreveport, La., 15th, houses flooded.

For *March* the following total monthly rainfalls were received after the issue of the REVIEW: Dakota—.10 in. at Fort Totten; .25, Fort Buford. Montana—.14, Fort Benton; .19, Fort Keogh; 1.85, Blackfeet agency; 1.86, Fort Logan; 2.77, Fort Ellis. Idaho—2.12 at Fort Lapwai. Washington Territory—1.24 at Fort Colville; 2.10, Fort Townsend; 13.70, Bainbridge I.; 23.83, Neah Bay. California—.07 at San Buenaventura; .55, San Gorgonio; .60, Campo; 19.28, Camp Gaston. Arizona—.00 at Fort Mojave; trace at Camps Apache and Verde; .05, Prescott; .18, Camp Lowell; .40, Camp Bowie; .48, Yuma; .60, Camp McDowell; .85, Camp Grant. New Mexico—.32 at Silver City.

RELATIVE HUMIDITY.

The average percentage of relative humidity for the month ranges as follows: New England, from 58 to 71; Middle Atlantic States, 50 to 76; South Atlantic States, 55 to 75; Key West, 68; Gulf States, 54 to 74; Ohio valley and Tennessee, 50 to 62; Lower Lake region, 59 to 71; Upper Lake region, 59 to 69; Upper Mississippi valley, 47 to 56; Lower Missouri valley, 52 to 59; Red River of the North valley, 59 to 75; Eastern Rocky Mountain Slope, 45 to 54; Rocky Mountains, 35 to 58; Western Plateau, 35 to 52; Pacific States, 35 to 76. *High stations* report the following not corrected for altitude: Mt. Washington, 86; Pike's Peak, 60 per cent.

WINDS.

The prevailing winds at the Signal Corps stations are shown by the arrows, flying with the wind, on chart No. II. The *maximum* velocities, in miles per hour, have been given in the description of the movements of areas of low and high pressure. On Mt. Washington the highest velocity of the month, NW. 182 miles, was recorded on the 1st.

Total Movements of the Air.—The following are the *largest* monthly movements recorded at the Signal Corps stations, viz.: Pike's Peak, 14,958 miles; Cape May, 13,591; North Platte, 12,994; Thatcher's Island, 11,512; Dodge City, 11,421; Cape Lookout, 11,346; Sandy Hook, 11,221; Breckenridge, 10,788; Wood's Holl, 10,662; Kittyhawk, 10,488; Ft. Sill, 10,369; Indianola, 10,309; Barnegat, 9,959; Ft. Stevenson, 9,563; Boston, 9,466; Cape Henry, 9,281; Cape Hatteras, 9,090. On the summit of Mt. Washington a continuous record has not been obtained. The *smallest* are La Mesilla, N. M., 1,234 miles; Visalia, Cal., 2,491; Roseburg, Or., 2,501; Nashville, 2,605; Deadwood, 3,035; Tucson, 3,050; Augusta, 3,124; Lynchburg, 3,279; Virginia City, 3,395; Olympia, W. Ty., 3,432; Uvalde, Tex., 3,454; San Antonia, Tex., 3,751; Graham, Tex., 3,785; Los Angeles, 3,823.

Local Storms.—As low pressure area No. IV passed eastward over Virginia on the 3rd, a "tornado occurred at Brown's Summit, N. C., doing a large amount of damage." As low pressure area No. VIII moved eastward over the central Mississippi valley, during the afternoon and evening of the 14th, tornadoes occurred at Collinsville, Madison Co., Ill., and at Pocahontas, Hardman Co., Tenn. Prof. Nipher, in the monthly bulletin of the Missouri Weather Service, states that "in the Mississippi bottom, a few miles east of St. Louis, several tornadoes, unaccompanied by lightning, rain or hail, were developed, (at least four,) the tracks of three of which intersected in the village of Collinsville, Ill.," and that "a careful study of these has been made, and the results will be published in detail." The one at Collinsville "passed through the town at 2:45 p. m., taking a zigzag course in a general direction from WNW. to ESE.—width of path about 1,200 feet and length about three-quarters of a mile—the storm lasted about two or three minutes, destroyed about sixty buildings and injured several persons; in the cemetery nearly every stone was leveled; total

loss about $50,000." At Pocahontas another struck the town about 9 p. m., taking a course east of north, track about a quarter of a mile wide, storm lasting thirty seconds; it either demolished or unroofed all the buildings (which were of wood) in the village, and the roaring of the storm was heard miles away. The black cloud and accompanying noise were afterwards distinctly seen and heard from Hatchie bridge, a few miles east of Pocahontas, and at 10:40 p. m. a cyclone (tornado) crossed the track of the Memphis and Charleston railroad at a point about ten miles east of Pocahontas, where the storm did not last over fifteen or twenty seconds, (at this place the track was about 1,000 feet wide,) three houses were blown away, others were more or less damaged, and a house roof and some furniture were carried a distance of three miles." As low pressure area No. X passed eastward over the Southern States on the 15th and 16th, tornadoes occurred at Dallas, Texas, and Walterboro, S. C. The following notes, chiefly newspaper extracts, are to hand: "Dallas, 15th, 1 to 2 p. m., cloudy, with three distinct strata of clouds moving easterly, southerly and northwesterly, falling temperature and barometer; at 2 p. m. a murky, cone-shaped mass of vapor arose west of the north horizon, and swiftly moved southward;" * * * "the roar of the scudding volume presaged the storm;" * * * "it was preceded by hail and followed by heavy rain, which continued intermittingly to flood the streets of Dallas for two hours. The hail-stones were flatish-oblong, two to six inches in circumference, one to two inches across and three-fourths to one and one-half in thickness. The black, green-rimmed cone, gradually changing from perpendicular to horizontal, rose and fell in its motion like a monster wave as it sped with its apex pointing south. Before reaching the city the storm-scud parted in an apparent effort to change its course to the westward, the main part veering to the southeast and the other assuming the shape of a waterspout, twirling south of west. The course of the main cloud, which evidently shot upward before reaching the city, is not known; but subsequent developments indicate that the scud again parted, one portion going due east and expanding and the other taking a southwesterly course, assuming the shape of an inverted funnel, gradually lowered until it struck the ridge dividing Ten-mile and Five-mile creeks, seven miles south of Dallas, * * * where it made a conjunction, near Greer's farm, with the body which helped to form the tornado, after which it suddenly changed its course to northeasterly along the valley of Five-mile creek." Another report says: "The angry visitors, one traveling westerly from Trinity river, the other easterly towards the river, were not more than 300 yards wide until they collided near the Greer farm—when united they attained a width of three-fourths of a mile; the contact was preceded by rapid, vivid and blinding lightning, and followed by three deafening crashes of thunder. The force of the wind was terrific." * * * "The cyclone (tornado) having spent its force at the Belt place, the storm took its original course southward." Again: "The motion of the funnel-shaped body which first separated from the cone northwest of Dallas, and also of the other body which afterwards separated from the main scud east of Dallas, was rotary from southeast to northwest, or from right to left, until they collided at Greer's farm. After conjunction the bodies moved as one mass northeastward; but its motion was completely reversed (?), the whirl (?), as is evidenced by the debris and partially destroyed fencing, being from northwest to southeast. After the storm a dead sparrow was picked up, the head of which was completely encased with ice. The track of tornado along Five-mile creek was about eight miles long and two (?) in width; near Lisbon fifteen houses were completely demolished, six others and many out-houses damaged, and about twenty-five persons (ten seriously) more or less injured; fencing was destroyed for a distance of eight miles." The tornado that "traversed the southern portion of South Carolina on the evening of the 16th was almost as violent in Alabama. It swept across the State from Otto, through Lee county, Alabama, tearing down houses and uprooting trees, and passed into Georgia. At Otto the cyclone (tornado) approached in a circular cloud that was seen two miles off, and came with a deep, humming sound. The cloud appears to have rebounded from the earth at intervals. Loss heavy; fields washed smooth by heavy rains. Railroad traffic towards Alabama from South Carolina was stopped on two roads, the tracks being under water for hundreds of yards." The tornado "passed through the centre of Walterboro, S. C., about 4 p. m.; its approach was heard for about three minutes and the storm lasted two minutes; the storm (wind) came from the south about a minute, then shifted to northwest, with new fury; * * * the destruction commenced about one mile south of the village, * * * and some farms were desolated to the east of us; it was followed by terrible thunder-storms all night and deluge of rain next day; it demolished about one-half of the dwellings and every (seven) church; in eastern portion of town trees and ruined houses were massed together in every direction, and all the streets and landmarks totally obliterated; six persons killed, five severely injured, and a number of others cut and bruised. The destruction was accomplished in less than two minutes." At Oakley, about forty miles ENE. of Walterboro, "all the houses occupied by negroes were leveled, one negro killed and many injured; similar casualties are reported from various points along the track of the tornado." On the 27th, at 1 p. m., a very severe storm occurred at Pilot Point, Texas, "sweeping buildings, roofs, trees, fences,&c., in every direction, raising a church twenty feet from the foundation and causing a total destruction of it; maximum measured velocity of wind, NW. 64 miles; rain-fall from 1 to 1:45 p. m., 3.00 inches."

VERIFICATIONS.

Indications.—The detailed comparison of the tri-daily weather indications, with the telegraphic reports for the succeeding twenty-four hours, shows the general percentage of omissions to be 0.9 per cent, and of verifications to be 82.9 per cent. The percentages for the four elements are, for the Weather, 88.3; Wind direction, 84.6; Temperature, 81.1; Barometer, 77.6. The percentages of verifications by geographical districts are: New England, 81.8; Middle States, 87.2; South Atlantic States, 82.0; East Gulf States,